

# An Effectual Study on Process and Production Dissipate in the Knit Apparel Industry of Bangladesh

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## Abstract

The cram scrutinizes the solid dissipate in the knit apparel industry of Bangladesh and the exploitation of dissipate generated from different categories of input fabrics. It also walks around the dissipate producing rate for the accumulated dissipates on daily or shift basis in the several sections in the knit apparel industry of Bangladesh, and the environmental collision for this. Nevertheless numerous issues are allied to the knit apparel industry of Bangladesh in terms of the congregated dissipates, the study briefly analyses those issues with a prominence on management attempt. This study intends to provide an extensive study that covers the types of solid dissipate in the knit apparel industry, the differences of dissipate according to the several sections and the kind of industry. Data collected from the knit industries by the intensive observations and following a semi structured open ended questionnaire.

**Key words:** Dissipate, Knit, Fabric Solid Dissipate, Garments, Environment

## 1. Prologue

Recently WTO has ranked Bangladesh as the 4<sup>th</sup> largest exporter of readymade garments in the world. This sector contributes for 75% of foreign currency earning for Bangladesh. Textiles and Readymade Garments sector contributes 13% of GDP (Habib Shah, 2012) and employs more than 3,000,000 people. It has brought benefit and blessings for millions of people in the country. This industry has played a significant role in elevating economic and living standard of millions of families all over the country. Environmental degradation due to unplanned dissipate disposal and improper dissipate range in the apparel industries' areas were not the prime concern even a few decades ago in the developing countries like Bangladesh (Bhuiyan et al., 2003). This apparent disbelief in the dynamics and creativity of Bangladeshi RMG entrepreneurs seems to have sprung from the more general notion, widely held by many scholars during the 1970s and 1980s, that Bangladesh lacks entrepreneurial resources. But such changes can be made. The knitwear industry of Bangladesh is characterized by several distinct features. Most of the manufacturers are located in the principal centres of knitwear production in Chittagong, and in suburban Dhaka, Gazipur, and Narayanganj districts outside the Export Processing Zones (EPZs). Thus, most of these enterprises are outside the "enclave" environments provided for EPZ enterprises in Bangladesh. In the ready-made garments sector, the knitwear firms tend to be of recent origin. The Bangladesh Institute of Development Studies and the Institute of Developing Economies, Japan, jointly undertook a field survey of 232 knitwear producing firms in 2001 (Bakht et al. (2007) for details). **Table Description:** The Table shows the different operations and respective units operating knit apparel industry of Bangladesh where solid dissipate produces.

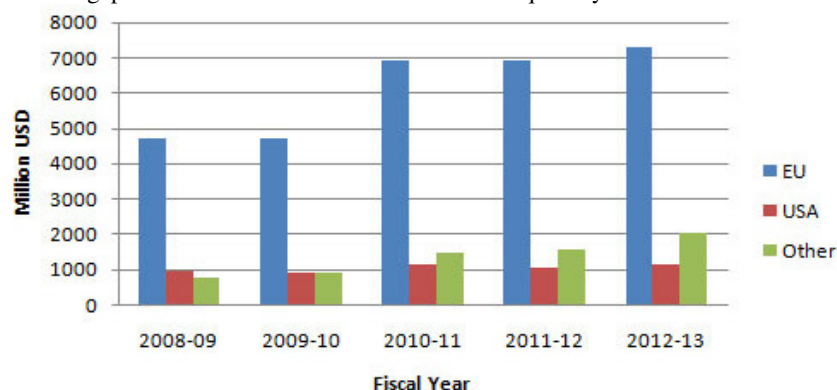
Operations	Number of Units
Knitting/Stitching Units	13,345
Dyeing and Bleaching	5,423
Fabric Printing	4,987
Embroidery	4,768
Other Ancillary Units	4,231
Compacting and Calendaring	3,421
<b>Total</b>	<b>36,175</b>

**Table:** Knit Apparel Industry Unit

**Source:** Bangladesh Hosiery Manufacturers Association (BHMA), Bulletin, 2010

**Diagram Description:** Bangladesh RMG sector mainly comprises of Knit and woven garments competing vigorously to surpass each other for taking up the leadership yoke within the economy. It was in FY 2003-04 the knit garments for the first time exceeded woven wear and became the leader in terms of quantity exports with 91.6 million dozens as against 90.48 million dozens of woven garments. And from FY 2007-08, knitwear

continues to widen the gap with woven both in terms of value and quantity.



## 2. Surroundings on the Cram

Solid dissipate is the biggest concern for knit apparel industry of Bangladesh. Knit apparel industry is the highest manufacturing unit to export several types of apparel all over the world. As per the higher fabric requirement, the producing rate of knit solid dissipate per day is significantly higher (J. Jones, 2013). It is all about at least 20% to 25% from the total production of required fabric (Keen Liu, 2012-2013).

There are 4 units inside the knit apparel industry basically produce fabric solid dissipate and which are completely related with manufacturing operations. Such as:

- Primary Inspection Unit
- Cutting Unit
- Sewing Unit
- Finishing Unit (Including Final Inspection)

According to Hines and Bruce (2001) the sustainably problems are highly visible in the world knit industry as it is the type of fashion which aims to move trends from catwalk to retailers in the fastest possible time to keep up with the current market trends and also emerging the solid dissipate usually. Buyers enjoy updating their wardrobe as frequently as possible. Joy et al (2012) found that consumers argue that if the knit garments are trendy for a year they do not need high quality clothing. Thus, due to their basic nature, knit companies face many challenges which hinder the implementation of CSR strategies due to the solid dissipates control facts (Hines and Bruce, 2001). **Table Description:** Operations and Process wise several Solid Dissipate Areas. It is also mentioned Point wise to the Next Table.

Operations	Dissipate Area	Process	Type of Solid Dissipate
Mechanical	<b>Dissipate Area 1</b>	Knitting	Fiber, Yarn
		Fabrication	Cloth Scrape
Dyeing		Sizing/De-sizing	Flock, Spoiled Fabric
		Mercerizing	Chemical Containers
Cutting	<b>Dissipate Area 2</b>	Tufting	Wrong Selvage Fabric
		Fluff and Shear	Sweeping
		Cutter	Rough Edge fabric
Sewing	<b>Dissipate Area 3</b>	Stitching	Thread and Edges
		Refraining	Rejected Body
		Line Inspection	Fabric or Body Dissipate
Finishing	<b>Dissipate Area 4</b>	Sorting	Oily Fabric, Paper
		Packing	Sludge, Red Fabric, Poly
		Packaging	Elastic, Rejected Portions

**Table:** Division of Solid Dissipate Producing Area in Knit Apparel Industry

## 3. Statement of the Study

Improper operations of manufacturing units are producing more solid dissipate in the knit apparel industry of Bangladesh and it is one of the main causes of environmental pollution and degradation in many cities and inside the industrial area as well. Many knit apparel industries' lack solid dissipate regulations and proper disposal facilities.

#### 4. Objectives of the Study

The main objective of the study is to conceptualize and understand the dissipate produced in the knit apparel industry of Bangladesh. The specific objectives of this study are as follows:

- To investigate the fabric solid dissipate in the knit apparel industry of Bangladesh.
- To assess the total quantity of dissipate produces based on the types of selected knit apparel industries in Bangladesh.
- To examine the manufacturing unit wise solid dissipate producing rate.
- To conceptualize the total ratio of knit solid dissipates as per input and output.

#### 5. Knit Solid Dissipate Configure

Export of any kind of solid dissipate requires Government permission Know-how of handling and especially disposing (selling) all kinds of solid dissipate or e.g. E-dissipate are needed. In 2008, there were about to 600 government knit apparel industries (Asib K. Ahmed, 2011), 1.600 clandestine knit fabric (Quader, 2012) and heavy knit and 1.200 basic knit products (BKMEA, 2013) in Bangladesh Studies show that huge amount of knit fabric solid dissipate is generated from these and the dissipate generated is rising with the increasing population. Projection indicates that the solid dissipate generation would be 12,512 tons/ year by 2013 and 16,356 tons/year by 2017. Only most recently separate collection of knit fabric solid dissipate has been started in Dhaka, Khulna, Jessore, Rajshahi and other cities, but this is still done in simple ways and more know-how in handling of the solid dissipate is needed.

#### 6. Knit Solid Dissipate in World Sector

Knit apparel focusing companies, such as Zara, Gap, Benetton, H&M are speeding up and shortening the solid dissipate cycle (The New York Times, 2013). Traditionally there were 2 to 4 collections yearly, but now there are 6 to 8 in case of the most fast fashion brands are concerning the knit fabric solid dissipate (The Wall Street Journal, 2013). Companies implemented “just in time” manufacturing by reducing their turnaround time through solid dissipate on the whole supply chain (Greenpeace, 2012). The root problem is that they design the garments for 10 washes, thus use poor-quality materials generates the fabric solid dissipate (Joy et. al., 2012).

#### 7. Action for Solid Dissipate Framework

The massive production accelerates the environmental footprint of clothes through the whole life cycle. At the first stage of the production vast amount of fabric and materials such as pesticides are needed to grow and produce cotton and after fabric solid dissipate (Zycal X, 2012). Clothing items from Mango, Metersbonwe, Levi's, Zara, Calvin Klein, C&A, Marks & Spencer and Jack & Jones contained the largest concentrations of serious types of knit fabric solid dissipate (Greenpeace, 2012). Their use in the EU is banned, yet the import of textiles treated with Jhut is trade is not banned (Hok, 2007). Phthalates were found in all the 31 plastisol printed clothes solid dissipate. Extremely high concentrations (up to 37.6% by weight) were found in 4 garments produced by Tommy Hilfiger, Armani, and Victoria's Secret. In addition, the tests identified 5 industrial chemicals, which are “toxic” or “very toxic to aquatic life” and falling knit fabric solid dissipate (Greenpeace, 2012).

#### 8. Data Integration

The 3 (Three) categories of samples were followed to select data precisely in terms of the thesis result and findings with requirement and due to the qualitative nature of the research questions and objectives.

Such as:

- **Regular Knit Garment Industry:** (Total Samples: 10)

In where, only the common processes and arrangements are maintaining with the operations. Management of the manufacturing units are not up to the mark. It produces knit apparels sometimes for the local market as well. It also operates sub-contact manufacture policy.

- **Composite Knit Garments:** (Total Samples: 10)

In where, all the process available like yarn transforming as knitting to finalizing the product like complete apparel. It contains fabric unit, dyeing, printing and washing zone as well. It is the costly industry for the apparel sector with its operations.

- **Compliance Knit Garments:** (Total Samples: 10)

In where, certified regulations are maintained and all the operations are processing with the international management and controlling. ILO, WRAP and ISO are the highest governing body to certify this type of knit garment industry.

Summary of Sample Categories				
Types of Operations	Types of Knit Industries			
	Regular (R)	Composite (C)	Compliance (Cp)	Quantity
Manual (M)	RM	CM	CpM	14
	10	04	00	
Semi Automated (S)	RS	CS	CpS	09
	00	04	05	
Automated (A)	RA	CA	CpA	07
	00	02	05	
Total Sample Knit Industry				30

**Table:** Categorization and the Quantification of the Sample Knit Apparel Industry

As per operational mechanisms and manufacturing processes, there are 3 (Three) categories of knit apparel industry were distinguished. Such as:

- **Manual:** (Total Samples: 14)

In where all the activities and manufacturing processes are done by manual machines with human labour usually. It is the mostly number of knit apparel industries in this study.

- **Semi Automated:** (Total Samples: 9)

In where, some of the activities and manufacturing processes are done by manual machines and human labor and also some of the activities and operations done by automated machines. It is the second most number of knit apparel industries in this study.

- **Automated:** (Total Samples: 7)

In where all the activities and manufacturing processes done by automated machines and indirect human labor. It is the least number of knit apparel industries in this study.

## 9. Input versus Point wise Dissipate Analysis

There are several categories of fabric used to produce knit apparels. But Single Jersey Fabric is the highly used fabric in the knit apparel industry and the Weight of 160 GSM was taken to analyse and accumulate the Data.

The areas of knit fabric solid dissipate are as follows:

- Primary Inspection Area (During In-House) [Point 1]
- Cutting (Relaxation Area) [Point 2]
- Sewing Area (Including In-Line Inspection) [Point 3]
- Finishing Area (Including Final Inspections) [Point 4]

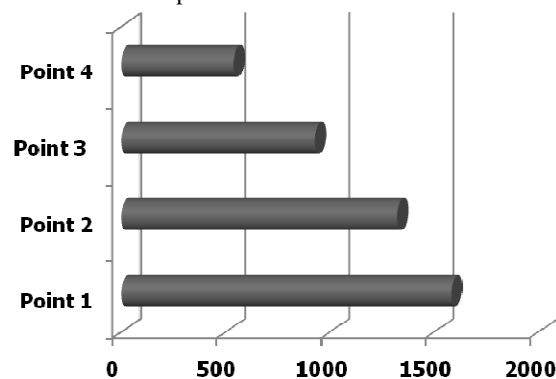
Input versus Dissipate Ratio							
Factory No	Input Quantity (KG)	Inspection Loss (KG)	Cutting Loss (KG)	Sewing Loss (KG)	Finishing Loss (KG)	Total Dissipate (KG)	% of Dissipate
	[A <sub>1</sub> ]	Point 1	Point 2	Point 3	Point 4	[A <sub>2</sub> ]	(A <sub>2</sub> / A <sub>1</sub> ) x 100
1	700	35	50	20	10	115	16.25%
2	750	30	40	25	15	110	14.67%
3	780	40	50	15	10	125	16.03%
4	800	25	30	30	20	105	13.13%
5	820	20	45	30	15	110	13.42%
6	880	25	40	35	20	120	13.63%
7	910	50	70	30	25	175	19.24%
8	950	45	65	25	20	155	16.34%
9	990	25	35	35	15	110	11.12%
10	1000	50	50	30	10	140	14%
11	1100	25	40	25	5	95	8.64%

12	1900	100	100	50	40	290	<b>15.27%</b>
13	2000	80	60	30	50	120	<b>6%</b>
14	2300	110	100	50	20	280	<b>12.18%</b>
15	2500	25	20	10	5	60	<b>2.4%</b>
16	3000	20	40	30	10	100	<b>3.34%</b>
17	3200	60	35	20	20	135	<b>4.26%</b>
18	3600	50	30	10	15	105	<b>2.9%</b>
19	3900	90	35	30	20	175	<b>4.49%</b>
20	4000	80	30	25	25	160	<b>4%</b>
21	4100	40	25	50	20	135	<b>3.30%</b>
22	4250	35	30	30	10	105	<b>2.48%</b>
23	4400	55	25	50	5	135	<b>3.06%</b>
24	4700	70	30	30	5	135	<b>2.89%</b>
25	5000	65	25	50	10	150	<b>3%</b>
26	14000	50	120	20	45	235	<b>1.68%</b>
27	1100	25	15	25	10	75	<b>6.8%</b>
28	24200	220	200	50	40	470	<b>2%</b>
29	23100	140	180	45	30	385	<b>1.6%</b>
30	1600	10	10	25	5	50	<b>3.1%</b>
<b>Total</b>	<b>136930</b>	<b>1585</b>	<b>1325</b>	<b>930</b>	<b>540</b>	<b>4240</b>	

**Table:** Point wise Solid Dissipate Producing Rate

**Table Description:** Table shows the input solid (Fabric) versus final solid dissipate ratio. Also shows the ultimate percentage of solid dissipates compare to input and the point wise solid dissipate producing quantity. The Point wise Dissipate Percentage is as beneath:

- Point 1 Dissipate: 1.16% of Total Input
- Point 2 Dissipate: 0.97% of Total Input
- Point 3 Dissipate: 0.69% of Total Input
- Point 4 Dissipate: 3.09% of Total Input

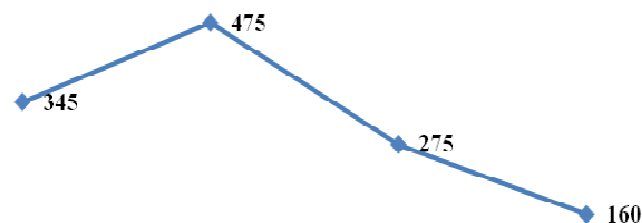


#### 10. Factory Category wise Dissipate Analysis

Most of the Regular kind of knit apparel industries' solid fabric input quantity is little less compare to other two categories like Compliance and Composite knit apparel industries. Due to the lack of foreign exchange, the processes are not significantly proper to manufacture the knit apparel inside the regular kind of knit apparel industries and so that fabric solid dissipate rate is higher.

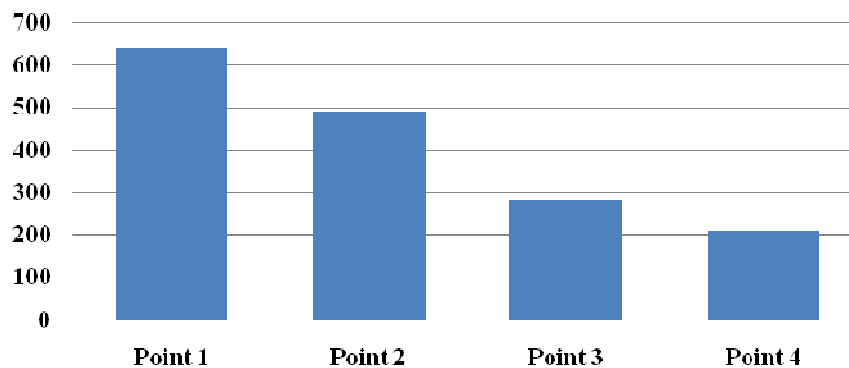
Regular Knit Apparel Industry						
Factory	Input Fabric Quantity	Point 1 Dissipate	Point 2 Dissipate	Point 3 Dissipate	Point 4 Dissipate	Total Dissipate
	KG	KG	KG	KG	KG	KG
1	700	35	50	20	10	115
2	750	30	40	25	15	110
3	780	40	50	15	10	125
4	800	25	30	30	20	105
5	820	20	45	30	15	110
6	880	25	40	35	20	120
7	910	50	70	30	25	175
8	950	45	65	25	20	155
9	990	25	35	35	15	110
10	1000	50	50	30	10	140
<b>Total</b>	<b>8580</b>	<b>345</b>	<b>475</b>	<b>275</b>	<b>160</b>	<b>1265</b>

**Table:** Point wise Dissipate only for the Regular Knit Apparel Industry



**Diagram:** Line Graph for Point wise Dissipate Ratio in the Regular Knit Apparel Industry

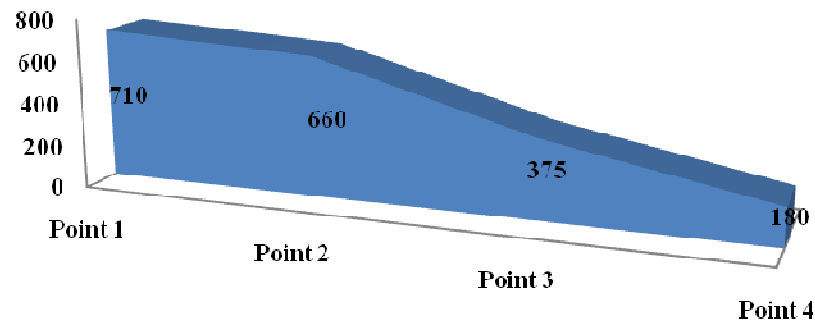
**Table Description:** According to the composite knit apparel industry, the total dissipate is 5.53% and upper table shows that the more fabric solid dissipate producing rate is 2.33% on Point 1 and it means on primary inspection section. Due to the higher efficiency it reduces the dissipate percentage.



**Diagram:** Bar Chart for Point wise Dissipate Ratio for Composite Knit Apparel Industry

**Table Description:** According to the compliance knit apparel industry, the total dissipate is 2.17% and upper table shows that the more fabric solid dissipate producing rate is 0.83% on Point 1 and it means on primary inspection section. Due to the higher efficiency it reduces the dissipate percentage. Without this, the dissipate

percentage of this kind of knit apparel industry is always lesser because of the higher monitoring and the efficient employer's transaction.



**Diagram :** Point wise Dissipate Ratio for Compliance Knit Apparel Industry

- **Manual Knit Apparel Industry**

In where, the fabric solid dissipate quantity is 12.91% based on its total fabric input per day and 4.89% is the Point 2 solid dissipate which is the cutting unit of the industry. It is higher due to the less efficient human effort and no uses of automated machines and equipments.

Category wise Solid Fabric Dissipate Rate							
Valid	Category of Knit Apparel Industry	Total Input	Point 1 Dissipate	Point 2 Dissipate	Point 3 Dissipate	Point 4 Dissipate	Total Dissipate
		KG	KG	KG	KG	KG	KG
	Manual	15880	660	775	430	275	2050
	Semi Automated	32950	455	270	255	130	1110
	Automated	73700	580	580	245	145	1500

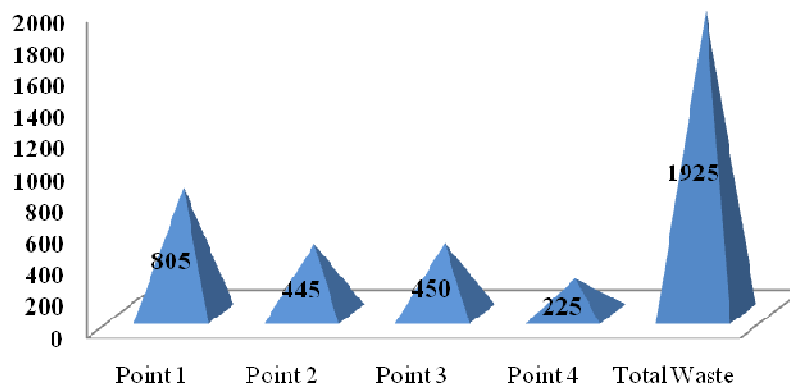
**Table:** Solid Dissipate Quantification for Category and Point in Knit Apparel Industry

- **Semi Automated Knit Apparel Industry**

In where, the fabric solid dissipate quantity is 3.37% based on its total fabric input per day and 1.38% is the Point 1 solid dissipate which is the primary inspection unit of the industry. It is higher due to the proper inspection and management.

- **Automated Industry**

In where, the fabric solid dissipate quantity is 0.21% based on its total fabric input per day and 0.78% is the Point 1 and also Point 2 solid dissipate which are the primary inspection unit and the cutting unit respectively for the industry. Due to the proper utilization of the automated machines and equipments the fabric solid dissipate producing rate is significantly lesser compare to other types of industries.



**Diagram:** Point wise Dissipate Ratio for Manual Knit Apparel Industry

### End Notes

For managing solid dissipates of knit apparel industry, manufacturing and community based projects have

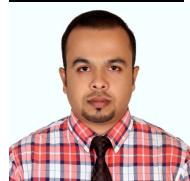


demonstration effect. Authority can play an important role in initiating, innovating new concepts, providing technical knowledge and providing training to individual or the respective one in the dissimilar kind of apparel industries. In apparel sector especially a large number of newly established industries are not aware about the impact of unplanned solid dissipate disposal and it is specially fabric solid dissipate on health and solid dissipate related problems. Many industries are disposing garbage in nearby open spaces or directly to the environment through pipeline and vans. Therefore, it is important to launch a long-term awareness and campaigning programme in the area so that owners and the responsible industry employees get motivated about enhancing own environmental conditions willingly. Knit apparel does not yet have any solid dissipates recycling project.

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## Author's Profile



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